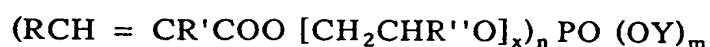


CLAIMS

1. A polymerisable surfactant having at least one hydrophobic polymerisable group which is linked by polyalkyleneoxy groups to a hydrophilic group, wherein the polymerisable surfactant is of the general formula:



where $n + m = 3$

- 10 x is between 5 and 40
 R = H or CH_3 or $COOR'''$
 R' = H or CH_3
 R'' = H, CH_3 or C_2H_5
 R''' = $C_1 - C_{20}$ alkyl
 15 Y = H or an alkali metal atom

2. A polymerisable surfactant according to Claim 1 wherein the hydrophobic polymerisable group represented by $RCH=CR'COO$ is acrylate.

20

3. A polymerisable surfactant according to Claim 1 wherein the hydrophobic polymerisable group represented by $RCH=CR'COO$ is methacrylate.

- 25 4. A polymerisable surfactant according to Claim 1 wherein the hydrophobic polymerisable group is maleate, fumarate, crotonate or isocrotonate.

5. A polymerisable surfactant according to any preceding claim
 30 wherein x is between 17 and 22.

6. A polymerisable surfactant according to Claim 5 wherein x is 20.
7. A polymerisable surfactant according to any preceding claim wherein the oxyalkylene groups represented by $[\text{CH}_2\text{CHR}'\text{O}]$ comprise
5 mainly propyleneoxy groups.
8. A polymerisable surfactant according to Claim 7 wherein from 80% - 100% of the oxyalkylene groups are propyleneoxy groups.
- 10 9. A polymerisable surfactant according to Claim 7 or 8 wherein the balance of the oxyalkylene groups not being propyleneoxy groups is selected from ethyleneoxy and butyleneoxy groups.
- 15 10. A polymerisable surfactant according to any preceding claim wherein the hydrophilic group represented by $\text{PO}(\text{OY})_m$ is a phosphate group, where Y represents hydrogen.
- 20 11. A polymerisable surfactant according to any one of Claims 1-9 wherein the hydrophilic group represented by $\text{PO}(\text{OY})_m$ is a water-soluble phosphate salt group.
- 25 12. A polymerisable surfactant according to Claim 11 wherein the water soluble phosphate salt is group is an alkali metal phosphate, in which Y represents an alkali metal atom.
- 30 13. A method of making a polymerisable surfactant according to any one of Claims 1 to 12, the method comprising the steps of:
- reacting an unsaturated carboxylic acid corresponding to the hydrophobic group with an alkylene oxide corresponding to the oxyalkylene linking

group while maintaining the temperature of the reaction below that at which spontaneous polymerisation of the unsaturated groups of the hydrophobic group would occur; and

5 phosphating the resultant polyalkoxylated hydrophobic group.

14. A method according to Claim 13 wherein the polyalkoxylation process step is carried out with the aid of a catalyst.

10 15. A method according to Claim 14 wherein the catalyst is a catalyst for alkoxylation which does not catalyse the polymerisation of unsaturated groups of the hydrophobic group.

15 16. A method according to Claim 14 or 15 wherein the catalyst for alkoxylation is a strong Lewis acid.

17. A method according to Claim 16 wherein the Lewis acid is boron trifluoride.

20 18. A method according to any one of Claims 14 to 17 wherein a small portion of a catalyst for alkoxylation is added to the unsaturated carboxylic acid before addition of the alkylene oxide.

25 19. A method according to any one of Claims 14 to 18 wherein a bulk portion of the catalyst for alkoxylation is added to the unsaturated carboxylic acid with the alkylene oxide.

30 20. A method according to any one of Claims 14 to 19 wherein a small portion of the catalyst for alkoxylation is added after completion of the addition of the alkylene oxide.

21. A method according to Claim 20 wherein hydroquinone is added to the reaction mixture after the addition of the small portion of catalyst.
22. A method according to any one of Claims 13 to 21 wherein any
5 unreacted alkylene oxide is removed.
23. A method according to Claim 22 wherein the alkylene oxide is removed by sparging with air.
- 10 24. A method according to any one of Claims 13 to 23 wherein the reaction of the unsaturated carboxylic acid and the alkylene oxide is carried out in an inert atmosphere.
25. A method according to any one of Claims 13 to 24 wherein the
15 phosphation step is carried out by reaction with phosphorus pentoxide.
26. A method according to any one of Claims 13 to 25 wherein the product of the phosphation step is treated to remove any unreacted phosphoric acid.
20
27. A coating including a polymerisable surfactant according to any one of Claims 1 to 12 or made by the method of any one of Claims 13 to 26.
- 25 28. A coating according to Claim 28, which is an emulsion polymerisable coating.
29. A polymerisable surfactant substantially as described herein.

30. A method of making a polymerisable surfactant substantially as described herein.

31. A coating including a polymerisable surfactant substantially as
5 described herein.